1: Petrullo E-3 (1933-34) 1939 SS19 Yaruro SS19

512 grains of sand, they wait patiently and quietly, though hungry.
461 They seek no shelter from the wind, preferring it to the myriads of insects lurking in any sheltered spot. And then, too, it is cool in the wind, terrifically hot away from it.

572 About midafternoon the hunters and food gatherers straggle in.
224 They bring small crocodiles and turtles, crocodile eggs, turtle eggs,
222 perhaps some honey; and the women return with full baskets containing changuango, a wild root that they have dug up in the savanna. They, too, may bring turtle eggs. Not always, of course. The men and the women may return with empty hands and empty baskets. In any event there is no boisterous reception, but the same silence, the same quiet acceptance of the day and what it brings as they have shown at its beginning. Fires are built larger, the women roast the
512 roots, the men help with the turtles and the crocodiles. These are
252 placed whole on the fire until the shells are toasted and then they
515 are cracked open. Wives become busy delousing their husbands, using a carved stick to help in the search. Sometimes the lice are picked and eaten. But the bodies of the men are covered with numerous black blisters, showing that they have suffered the daily torment from the insects. The wife crushes all of these blisters with the same delousing tool.

512 Dinner is a gala time. Calabash dishes containing the various
264 courses are placed in the center of the ring formed by each family.
262 The food is picked up and carried to the mouth with the fingers. There are crocodile eggs. These are opened and the contents are sucked up raw. The same is done with the turtle eggs. There is the course of roasted changuango, and the pieces of turtle meat. But the real delicacy is crocodile, the best meat of all. The crocodile is eaten in its entirety, except for the entrails, and when the dinner is over some of it is left by the fire, an open invitation to anyone to fill any empty portion of his stomach. The stomachs become distended as tremendous quantities of food are swallowed. This is the only real meal of the day, and the fear of a dinnerless tomorrow drives the eaters to exceptional feats of gourmandizing until their bodies can hold no more. The lean dogs fight among themselves over the refuse heaps. The vultures glide overhead or are busy at crocodile entrails.

512 There is no after dinner work—no kitchen or table ware to wash,
517 nothing to spoil the proper enjoyment of a full stomach. They eat
776 until they have had enough, and then they move to the east of the fires to lie on the clean sands and watch the sun hide beneath the western horizon. For about half an hour they watch the ever-changing colorful western sky and when rays of light emanate from below the horizon to streak the heavens with blue and gold and white, they

1:Petrullo E-8 (1933-34) 1939 S519 Yaruro S519

Without the aid of the Yaruros the crossing of the Orinoco would have been impossible. They are expert canoeists and safely ferried our baggage to the other side. Believing that I could handle a canoe, for by this time according to the Yaruros there wasn't anything that I could not do, since their gods had told them that I was one of them, I was asked to cross in an empty canoe, with the help of a 12-year-old boy. The canoe had several gaping holes in stern and bow about 10 inches in diameter. With serious misgivings, I embarked with the youngster paddling in the bow. Cross-currents, winds, and whirlpools made the half hour a very exciting one. Several times I gave up hope of crossing safely or of returning to our starting point, only to be encouraged by the laughter of my young companion who, when we were in extreme danger, would turn and grin happily at me. However, we crossed safely and soon afterwards we hoisted sail, which consisted of my mosquito net tied to an improvised mast, and with the east wind behind us and with gunwales even with the water, we went flying up the Capanaparo. Our sailing was far from being monotonous, for every few minutes it was necessary to use strength and skill to keep the canoe upright. Three days later we reached Landaeta's camp.

The trip to Urbana had been exciting and interesting, but I brought back with me ulcers on my feet which incapacitated me for the rest of my stay with the Yaruros. My feet, swollen to immense proportions and with open sores, refused to support my body, and I was forced to forego any further trips, short or long. My life consisted from now on, for about six weeks, of lying on the sand or in a hammock, surrounded by my affectionate friends, talking about the universe, the Yaruros, and their ideas.

In order to make it possible for Landaeta and his people to stay with me on this particular beach rather than move about in search of food, I turned over all of my food stock to them, which was consumed in two days, and thereafter they shared equally with me the products of the hunt. From that day on, I was completely in their care and Landaeta never left me. The burden of hunting fell on the younger men who went out every morning in search of crocodiles and turtles, of honey, palm nuts, roots, and fish. My illness was of great concern to the Yaruros. They did what they could to make me comfortable and they went to special trouble to bring titbits, such as honey and nuts. Landaeta and a woman shaman sang over me often. This illness was a fortunate event in a way, for it permitted an uninterrupted intimacy between us.

There is a sharp contrast between the simple primitive material culture of the Yaruros and the wealth and poetic intensity of the spiritual. The casual visitor would see merely a naked people plying

1: Petrullo E-3 (1933-34) 1939 SS19 Yaruro SS19

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In the case of the Yaruros all of these factors have played an important role and are currently active in reducing their territories and food supply to a degree that will mean imminent extermination of the people. It is true that since the first settler arrived in their country the Yaruros could have made readjustments in their culture which perhaps might have permitted them to survive. They could have learned, for instance, to raise horses, cattle, and to cultivate the soil as the [178] Guajiros, living in a country similar to the llanos, have done. But they have chosen to remain firm in their own culture, own traditions, and own universe, and as a result are expecting to pay the penalty. Why they have failed to make the readjustment which would have brought them into a livable relationship with the newcomers and have persisted in keeping to their primitive, nomadic existence may be answered in the pages that follow.

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Dependency on hunting, fishing, and gathering of edible fruits and roots imposes nomadism upon a people and prevents living together in large groups. The degree to which a people have to wander, the extent of the territory over which they must roam, and the size of the group, is dependent upon the abundance of the food supply in the region. The Yaruro hunting groups are small and they stay in one camp not more than a few days; so, they are to be met plying up and down the river in their canoes or traveling over land to the water holes, ever hunting for food.

HUNTING TERRITORIES

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Each hunting group has a territory over which it is free to roam. Over this region only its members are allowed to hunt and gather fruits and roots, but the rivers, the main streams, are open to all. The accompanying map shows the limits of the present hunting territory [174] of the Yaruros of the Capanaparo. It would seem that anciently, when the Yaruros were more numerous, they roamed over a vaster region cut up into small portions over which hunting rights were distributed among various hunting family groups. I was assured that the Yaruros of the Sinaruco also have divided their country into family units.

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There is also a sort of division among the Yaruros which transcends family grouping. The Yaruros of the Capanaparo, for instance, consider themselves a unit, though loosely bound, as distinct from the Yaruros of the Sinaruco, so that they consider the land drained by the Capanaparo as theirs and the region drained by the Sinaruco as the land of the Yaruros of that river. And yet, above all this, there seems to be a tribal feeling as opposed to the tribal divisions. The real significance of this is that among the Yaruros there is permitted a degree of mutuality in the use of the hunting rights

1: Petrullo E-3 (1933-34) 1939 SS19 Yaruro SS19

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not allowed to the neighboring peoples, such as the Otomacos or the Achaguas. The social and linguistic bonds seem to be strong enough to cause the Yaruros to recognize themselves as a distinct people.

FOODS

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In the llanos food is not plentiful except in and along the rivers; but the foraging activities of the Yaruros are restricted to the banks of the Capanaparo and Sinaruco Rivers for another reason. The hunting of land animals has practically stopped for fear that they will be accused by the ranchers of killing cattle. In recent years the activities of the crocodile hunters have ruthlessly destroyed the game, and since such hunters live on the country they have consumed a portion of the available quantity of game on which the Yaruros depended for a livelihood.

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In the dry season game is concentrated along the rivers and the water holes. It is considerably easier to hunt it then than in the rainy season, when it is dispersed over the plains. The turtle, which is found in great quantities in the waters of the Orinoco and its tributaries, suffers a yearly mass hunt and destruction which has its effect on the food supply of the Yaruros. It has been discovered that the turtle fat and eggs will produce a fine grade of oil which sells for a high price. The result is that the breeding grounds of the turtles become yearly a scene of great activity and destruction. No one knows how many thousands of turtles and turtle eggs are gathered and converted into this oil late in the month of April.

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The meat staple of the Yaruros is the *Crocodilus babu*, a small crocodile which grows to about 6 feet long. This animal is hunted daily and eaten in its entirety. Its meat is esteemed above that of any other animal. On the other hand, the cayman, sought for its hide, is not hunted as a rule by the Yaruros. Perhaps this meat is not as savory as that of the babu, but the Yaruros give the reason that the large crocodile represents a race of mankind to which they are related. So that although occasionally it may be hunted for the price that its hide may bring, it is never eaten and never hunted consistently.

[825]

Next to the crocodile, turtles, including the matamata and tortoise, are to be found broiling over the fires in every Yaruro camp, and if they are not broiling they can be seen in shallow pools of water with their forelegs tied to their hindlegs. In this way they can keep alive but cannot walk away. The armadillo is seldom obtained and other meats appear occasionally on the diet of the Yaruros. Fishing is resorted to when neither crocodiles nor turtles are obtainable. The caribe, which is the piranha of Brazil, is esteemed but little. The tonino, which can be seen gracefully playing in the water or can be heard snorting in the rivers at night, is never hunted. It also is

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1: Petrullo E-3 (1933-34) 1939 SS19 Yaruro SS19

thought to be related to the race of mankind. On the other hand, the manatee is hunted occasionally. Birds are hunted but seldom, but the meat of the iguana is prized. This animal is not found in great quantities, however, in the open plains.

The vegetable diet is somewhat more plentiful and varied. There are no restrictions or taboos on what can be eaten. In the dry season it is the potato-like changuango, which is gathered by the women and which is to be seen broiling over the fires at all times, and which is the only food which the Yaruros are able to keep for a few days by burying it in the sand. In the rainy season it is the chigua seed and the barbaco which form the basic foods. The following list includes most of the foods eaten by the Yaruros:

DRY SEASON

Eggs.—Terracai (small water turtle) (mostly in February), turtle (March, April), galapago (tortoise—December), crocodile (cayman—February), babu (December).

Meats.—Terracai, turtle, galapago, crocodile (babu), deer, chiguire (capibara), birds, iguana.

Vegetables.—Changuango (root found in the savanna), barbaco (root found in the forest, mostly in May), guapo (a root found in the forest), wild yam (found in the savanna and the forests), fruit of the macanilla palm, honey, hearts of palm (in April).

DRY AND RAINY SEASON

Fish.—(Local Spanish names) tapuara, caribe, toporo, tachiama, palumeta, pavon, cajani, temblador (electric eel).

RAINY SEASON

Meats.—Terracai, turtle, galapago, crocodile (babu), deer, chiguire, birds, iguana.

Vegetables.—Fruit of the moriche, chigua, barbaco.

PROPERTY

The Yaruros do not have much personal property. Nevertheless, what each person possesses is respected scrupulously. This attitude is especially in evidence when, for instance, a visitor attempts to purchase such a thing as a pot. In my case I was forced to ask the men. In spite of any price that I might offer they never allowed themselves to give any kind of an answer to my offer. Instead they offered the explanation that the pots were the property of the women and, therefore, they had to be asked if they wished to sell them. My own property I left in camp often without anyone to watch over it, but never did I miss even a sheet of paper.

1: Petrullo E-3 (1933-34) 1939 SS19 Yaruro SS19

593 The sense of strict inviolability of personal rights carries over to personal services. Never did a husband order his wife to do anything outside of her proper domain. While I lived with them, in spite of the excellent care they gave me, even to the point of anticipating my wishes in a great many cases, never did a husband request his wife to prepare food for me. He asked her if she would, acting merely as my mes-
604 senger. No closer relationship can exist than between maternal uncle and nephew, yet even he does not feel free to ask any service of his nephew, nor to take the latter's personal property.

DIVISION OF LABOR

462 Sexual dichotomy in economic activities is clearly defined. In a
562 general way, it may be said that the rougher, harder, and more dangerous work belongs in the province of male activity and that there is no task which calls for strength or danger that properly belongs in the realm of woman's activity. Should any woman be engaged in a hard or dangerous piece of work and a man happens to be present there is a tacit assumption of the task by the latter. Hunting and fishing and presumably the act of fighting in war are man's tasks. The gathering of roots, fruits, seed, and their preparation belongs to
[222] the women. It is interesting to note that the gathering of honey, which entails some risk, is done by the men. The making of canoes, the making of implements, of hammocks, the activities in making camp are all in man's domain. The preparation of food and the making of pottery and basketry are woman's tasks.

HUNTING AND FISHING

224 Hunting and fishing are male occupations exclusively. As soon as
868 the young boy is able to toddle about he is made to play with bow
857 and arrow and learns to make these indispensable tools. It is a common sight to see little boys who are too young to be taken along by the men on hunting expeditions playing at the game of hunting; and when a man is in camp busily preparing his hunting equipment his young son is by his side working industriously on miniature bows and arrows.

225 The equipment of the hunter is simple. Bow, arrow, and canoe are
411 indispensable. A Yaruro does not like to roam on land, but there
501 is no need for him to do so since he can get his game in the watercourses or along their banks. So he sets off in the early morning, generally accompanied by his hunting companion, to look for crocodile (*Crocodilus babu*). He will hunt for other forms of life only reluctantly, having a special liking for crocodile meat.

Because of the shyness of crocodile the hunter is most often forced to shoot at it from a distance. Since an arrow will seldom kill one

1: Petrullo E-3 (1933-34) 1939 SS19 Yaruro SS19

of the beasts it is necessary to shoot it with a barbed arrow whose head becomes detached from the shaft but remains attached to the latter by a string. The babu will make for deep water and submerge, but the shaft will float on top, and the beast is drawn to the surface by its means, to be dispatched by another arrow or by a knife blow.

The technique for hunting turtles is similar but its execution is more difficult, due to the smaller size of the turtle. These generally can be seen floating on the water with their heads held erect above the surface.

Fishing is done mostly with bow and arrow. The hunter stands up on the prow of the canoe which is guided into the proper position by his companion paddling in the stern. When the hunter is almost over the fish he shoots his arrow some inches in front so as to allow for the deflection caused by the water.

Deer is seldom hunted since the Yaruro shun the land for fear that they may be accused of killing cattle. Unless the deer is caught on the river bank in the early morning or in the evening it is stalked. The hunter fixes his gaze on the deer and moves forward a few feet at a time, stopping stock still at the slightest sign of alarm on the part of the deer. In this way he can approach to within arrow range. This technique takes great patience and time. The hunter may camouflage himself by painting his torso white and pasting feathers on it. He wears a mask in imitation of the jivaro stork, which consists of a black head and beak and a red collar around the neck. He may use the beak of the jivaro or substitute his bow for it. Mimicking the motions of the jivaro, he approaches the deer. When he is close enough he waits for the deer to look up, when he transfixes it with an arrow. The arrow used is so heavy that it cannot be launched from afar.

In addition to these, the armadillo, the tortoise, and the chiguire are hunted. The hunter does not fail to gather turtle eggs, crocodile eggs, and honey as he roams along the river banks.

FOOD GATHERING

It is the task of the women to gather supplementary food. They organize their own expeditions. Armed with digging stick and baskets and accompanied by the children, they roam the plains, digging up the changuango, the barbaco, and the chigua.

MATERIAL CULTURE

In material culture the Yaruros are poverty stricken. Their nomadic existence limits their possessions to what they can carry with them in their canoes, which is very little. The whole range of objects made or possessed by the Yaruros consists of canoe, paddles,

1: Petrullo E-3 (1933-34) 1939 SS19 Yaruro SS19

411 226 237 is inserted into the reed shaft (fig. 19, *a*, *f*). The barb on the iron point is obviously more effective than on the bone point.

225 For crocodiles the arrow point is always of iron, barbed and detachable. Its length is considerably less than the other, measuring about 4 feet or less. A string about 30 feet long is attached to the point and wrapped tightly around the shaft. When the point strikes the animal the string becomes unwound and if the animal dives into the water the hunter can trace it by the shaft floating on the surface. He then proceeds to pull up the animal.

411 224 For deer and chiguire, land animals, a broad iron blade is used for the point, so heavy that one would suppose it would be a lance head. This is inserted into the shaft and at the point of insertion a crosspiece is fashioned to the shaft so that the point cannot penetrate more than 4 or 5 inches. The reason for this is that the Yaruro is afraid to lose his arrow should he fail to kill the animal and it were to run away. A barbless arrow will tend to fall out of the wound if the animal races away and then the hunter can recover it.

411 223 For birds, the bone-pointed arrows are used and sometimes a special arrow consisting of a shaft with a wooden knob. However, since birds are hunted so seldom there is very little use for special arrows.

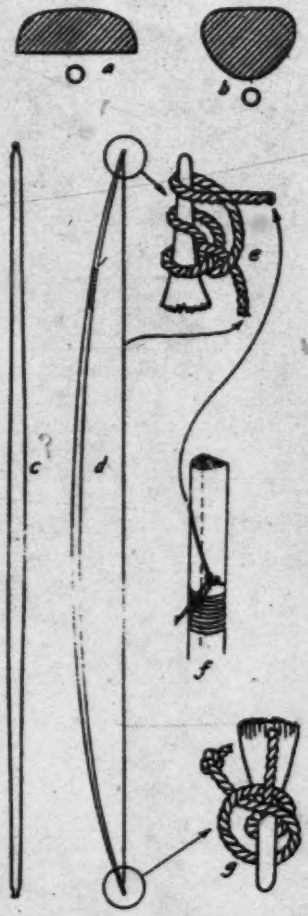

FIGURE 17.—Yaruro bows. *a*, *b*. Cross sections of bows. Circles represent original shape of wood, measuring about 7 cm before it is cut down to shape "a" and "b." *c*, *d*. Yaruro bow. One specimen measured 195 cm in length, 3.2 cm wide in cross section, 2 cm in thickness. *e*, *f*, *g*. Detail of knots on bow string.

411 326 412 The iron points are well made. Each man tries to possess himself of a stone and an iron hammer, but actually in the entire group that I saw, there were only two stones and one hammer. Iron is hard to obtain, and any scrap which comes into their possession is employed either as a knife or an arrow point. The iron is shaped both by hammering and by filing. I saw only one file in the group. At best, it must cause them a great deal of labor to fashion any of these points.

1 [see category 116, 207 --- Analyst]

1: Petrullo E-3 (1933-34) 1939 SS19 Yaruro SS19

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1. Yaruro bowman. The arrow is held to the string between the forefinger and thumb. The middle and fourth finger help pull the string back. 2. Crocodile meat is a staple food. The legs and tail have been cut off to make carrying easier. 3. Yaruros of Lagunote wearing parts of author's towels for breechcloths.

[End Plate 1]

area is only such in reference to the presence of a given technology. The presence of such a technology is not guaranteed in any particular culture by any historical, evolutionary, geographical, or ecological necessity. Its presence may entail a particular historical explanation or a general evolutionary one. In any case, its absence entails the absence of the use of certain resources whose presence we can observe only in retrospect. 311

Other resource areas besides those utilized because of the presence of horticulture among the Yaruro become available by their possession of hunting, gathering, and fishing technologies, as well as recently acquired animal husbandry in the form of pig-herding. Hunter animals include deer, armadillo, capybara, paca, peccary (?), iguana, and a number of birds (see Table II, p. 4).[1] These are variously distributed spatially according to the specific ecological niches for which they are adapted. Thus deer are apparently usually found dispersed in the somewhat damper, low-lying savanas where grass is greener and water more available away from the scene of human activity. Armadillo are found distributed throughout the savana. Other species, however, such as the capybara, live near the edge of permanent waters, mainly the rivers. Alligators also live only in the rivers. The faunal carrying capacity of the savanas appears to be quite low in the Cinaruco llanos since foraging foods for larger game animals are sparse. It is important to note that not only is the overall carrying capacity governed by the minimum average food supply of the savanas in the florally more restricted dry season,[1a] but the distribution of animals varies considerably from the wet to the dry season. In the latter, animals tend to cluster nearer the rivers or the widely dispersed water holes. Consequently, the locus of hunting must also shift seasonally (see Maps).[2] Savana hunting techniques are neccessarily different from those used in procuring food in the rivers, whether hunting alligators or capybara, or, of course, fishing. There is some seasonal variation in the locus of fishing, too, although this is much less marked on the Cinaruco than on the freely-flooding streams of the flatter, more north-easterly savanas of the Apure llanos. In the rainy season, fish move up the larger streams into somewhat shallower waters where more plant and insect food is available to them. However, they are apparently unable to move up smaller streams which often have rapids-like stretches interrupting their course. Thus fishing in the rainy seasons is directed towards the larger creeks and away from the smaller creeks and the river itself, where the water has become too deep for successful fishing since the fish are scarcer and more difficult to see in the deep, swift currents of winter. In respect to animal husbandry, recently introduced pigs are pastured anywhere in the savanas but preferably next to the village or quite a distance from it, in either case far from the nearest gardens (Sp. *conuco*, Y. *tadó*), an effort which is rarely successful, since the pigs, in their wisdom, are among the main predators on the garden crops. Gathering may be carried out in the dry or the wet savana depending upon the plant food to be gathered, or it may be carried out near the creeks especially for the fruit of the moriche palm. The rivers do not appear to be used in gathering. 224 137 [221] 226 133 231 [241] 222

[1] [See pp. 35-37, category 116 --Analyst]
[1a] [See pp. 40-41, category 102 --Analyst]
[2] [for footnote, see p. 42, category 116 --Analyst]

Yaruro	Spanish	English	Location and Techniques	Season of Prod. S d-m	F a	W m-s	Sp o-n	Division of Labor Prod. M	Prod. F	Food Prep. M	Food Prep. F	Q
ma"hikai	nahi ??	?	savana, digging stick	✓					✓		✓	1
ka'ta	changuanito savanero	?	as above	✓✓					✓✓		✓	2?
pa'ta	barbaco	?	monte, digging stick	✓✓					✓✓		✓	3
gwe'pe (=gwepe'ka)	chigo	? (seed)	near monte, big trees, ground			✓✓			✓✓		✓	2
ge (=ka)	chigo	? (seed)	?, ? (as above?)								✓	?
ANIMAL HUSBANDRY:												
o'bweia	marrano	pigs	savanas, herding (introd.)	✓✓	✓✓	✓✓	✓✓	✓✓	/	✓✓	✓✓	3
oka'zaro	gallina	chickens	dunes near houses (")	✓	✓	✓	✓	✓	/		✓	1
ANIMALS HUNTED:												
(a)ka'riga'ri(a'ni)	oso hormiguero	giant ant eater?	savana, bow and arrow	✓	✓	✓	✓	✓		✓	✓	4
ka'ri	baba	alligator	rivers, heavy barbed arrow	✓✓	✓✓		✓	✓✓		✓✓	✓	3
mbwa	venado	deer	savanas, lance arrow, gun	✓	✓	✓	✓	✓✓		✓✓	✓	3
ci'do	chigüire	capybara	monte, river, " ", fish arrow	✓✓	✓	✓	✓	✓✓		✓	✓	3
tapa'ra	conejo	rabbit	savana, fish arrow	✓	✓	✓	✓	✓		?	✓	2?
puri	lapa	paca	caño, monte, trapa, all arrows	✓	✓	✓	✓	✓		?	?	2?
ya'tatu"mi	iguana	water lizard	rivers, montes, fish arrow	✓	✓	✓	✓	✓		?	?	2?
'ga"re	cachicamo	armadillo	savanas, trapa, sticks, hand	✓	✓	✓	✓	✓		✓	/	3
'gurime"ta	manto	?	savanas, trapa, arrows	✓	✓	✓	✓	✓		?	?	?

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[p.35]

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-p. 36]

Yaruro	Spanish	English	Location and Techniques	Season of Prod. S d-m	F a	W m-s	S d-n	Division of Labor Prod. M	F	Food M	Prep. F	C
'yacre"'u	picure	? (aguti?)	monte, caño, fish arrow	≠	≠	≠	≠	≠		?	?	?
'iku"ri	tortuga	tortoise	rivers, fishhooks; on Capanaparo, use detachable arrow	≠≠			≠	≠		?	?	2
peda'me	terecai	terrapin?	rivers, fishhooks " "	≠≠			≠	≠		?	?	2
geda'me	morrocoy	boxturtle	mata, by hand - doesn't run	≠	≠	≠	≠	≠		?	?	1
ci'rida"me	galápago	river turtle	rivers, detachable arrow	≠≠			≠	≠≠		?	?	2
('hôi-obwi"a	chicharo	peccary	doubtful if hunted on Cinaruco)									
(be'ri	manati	manatee	doubtful if hunted on Cinaruco)									
BIRDS HUNTED:												
he'we	coiua negro	duck species	rivers, caño, arrows	≠				≠		?	≠	1
hi'ra	curutero	?	rivers, lakes, arrows	≠				≠		?	≠	1
indu'ra	garza morena	grey heron	rivers, lakes, arrows	≠				≠		?	≠	1
o'kara	garza blanca	white heron	lakes, arrows	≠				≠		?	≠	1
'huidiga'ra	garza pinta	painted heron?	lakes, arrows	≠				≠		?	≠	1
hue	gaviota (?)	?	lakes, arrows, bird arrow	≠				≠		?	≠	1
'kwiachi"ai	perdiz	partridge?	savana, bird arrow (?)	≠				≠		≠	?	1
hu'ru-yu'ru	pavo	curassow	rivers, monte, arrows	≠	≠	≠	≠	≠		≠	?	2
u'ra	jivaro (?)	jivaro stork?	lakes, arrows, shotgun	≠				≠		≠	?	2?
norsha'ra	pato real	duck species	lakes, arrows	≠≠				≠		?	?	?

222 the moriche palm (*Mauritia flexuosa*); several seeds, notably chiga (= chigo?; — *Campsiandra comosa*); calabashes (*Crescentia Cujete*), and bees' wax and honey. Non of the items gathered are large in size or difficult of access except the bees' wax, one or two of the fruits, and calabashes which grow on higher trees, or may be very far. Gathered foods may be picked up by hand or with the aid of a digging [412] stick or machete, and may be brought back in the harvesting baskets. Other items [415] which may be gathered include the raw materials for baskets and mat-making or 824 for food-processing tools such as the tipití, pots, or mortars and pestels. These [285] items include the fronds of the moriche palm, used for making cord, baskets, tipi- [323] tís, mats, and sacks; in some villages, clay for pots; reeds for arrows, wood for house beams, mortars and pestles, bows, and for cooking utensils. Wood, palm fronds, and many other items are gathered with the help of the all-purpose machete.

231 Pig herding is unsystematically done. The pigs, a recent acquisition, spend most of their time at will in the foraging grounds. The significant herding activity occurs only at times when one or another of the groups of pigs breaks into the gardens, an almost daily occurrence. They are then driven to the foraging grounds again, or if late in the day, into a close till morning when they are either driven forth again or allowed to scavenge in the village. There are several herds of pigs of sizes varying from perhaps a maximum of 20 including piglets to the more usual six or eight animals. The only tools used in pig care include a slaughtering [412] stick with which the pig is clubbed to death and knives to cut up the meat. The [262] close is built of logs cut with a machete and carried in by one or two men. Pig meat, though eaten with regularity, is definitely a secondary element of diet.

411 Hunting is done almost exclusively with the bow and arrow. There are several types of arrows. One for fish has a metal point approximately 4 inches long with a side hook about five inches from the tip, where the tip is set into the shaft. This may also be used for smaller animals. One for birds has a blunt wooden head, and does not appear to be used very often. A third type is used for larger animals such as deer and capybara. It has a blade about 6 inches long shaped like a laurel leaf and, at present, made of steel. At the base of the blade, a small cross-piece is affixed in order to prevent the precious blade from piercing so deeply into the animal that, if it escapes, it would carry the arrow away with it. The fourth type of arrow is used for turtles, tortoises, and alligators or other animals which submerge. The head is short and strong with a sharp recurved hook. The entire metal head is attached to a cord, and this in turn is attached to the arrow shaft, from which the head is detachable. On detaching, the shaft floats and the game can be followed in its underwater course. The bow is generally about 6 feet long or a little more. It is made rather crudely of the wood of the macanilla palm (*Bactris Gasipaes*). Some animals, especially land tortoises and armadillos, may be caught [136] by hand. Alligators may also be hunted with exceedingly heavy steel hooks and [224] a strong line. In hunting, no traps, nets, surrounds, or drives are used.

226 Fishing is done chiefly with bows and arrows, though an arrow may sometimes be used as a spear, repeatedly jabbed into grassy waters near the river banks. Fishing may also be done with hooks and lines of different sizes. Bait is also used. A man may fish from a platform built by lashing logs horizontally to two trees